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(71) Applicant(s):  
Janchy Enterprise Co.Ltd  
(Incorporated in Taiwan)  
4FL No.11, Lane 28, Ren Hua St.,  
San Chung City, Taipei, Taiwan

(72) Inventor(s):  
Shun-Tian Shuen

(74) Agent and/or Address for Service:  
Boult Wade Tennant  
Verulam Gardens, 70 Gray's Inn Road,  
LONDON, WC1X 8BT, United Kingdom

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F1B BFN BF320

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EP 1264972 A US 6340144 B

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INT CL<sup>7</sup> F01N  
Other: online: EPODOC, JAPIO, WPI, INTERNET

(54) Abstract Title: Decorative attachment for vehicle exhaust tailpipe

(57) The accessory comprises a multi-direction slip-on assembly 1 for fitment to the exhaust tailpipe, a formative cover 2 and a decorative plate 3. The rotary multi-direction slip-on assembly 1 extends along with the size of the exhaust, the decorative plate going with the user's preferences and requirements to provide decoration and attraction and one eg plastic exhaust cover installed on one end of the multi-direction slip-on assembly so as to provide various decoration and attraction and could be applied to all kinds of automobile exhausts. The accessory may be attached to the vehicle's bumper (51, fig.6) and may extend widthwise across the rear of the vehicle and heightwise to incorporate the vehicle's number plate.

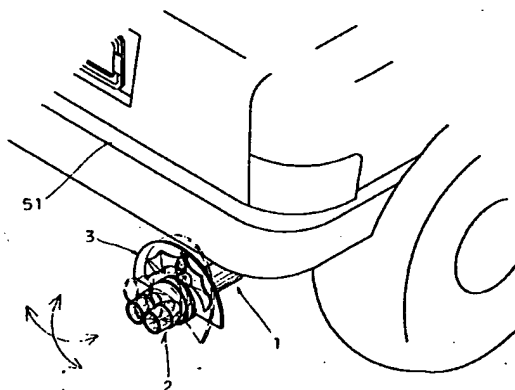


Fig 4

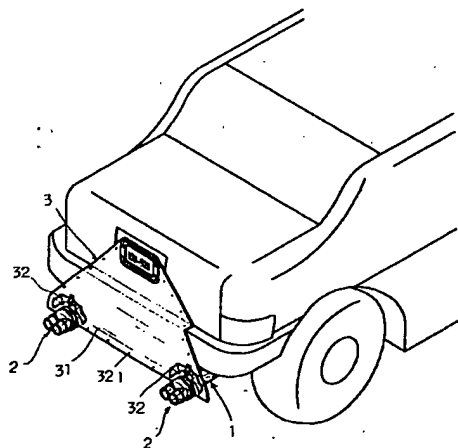


Fig 9



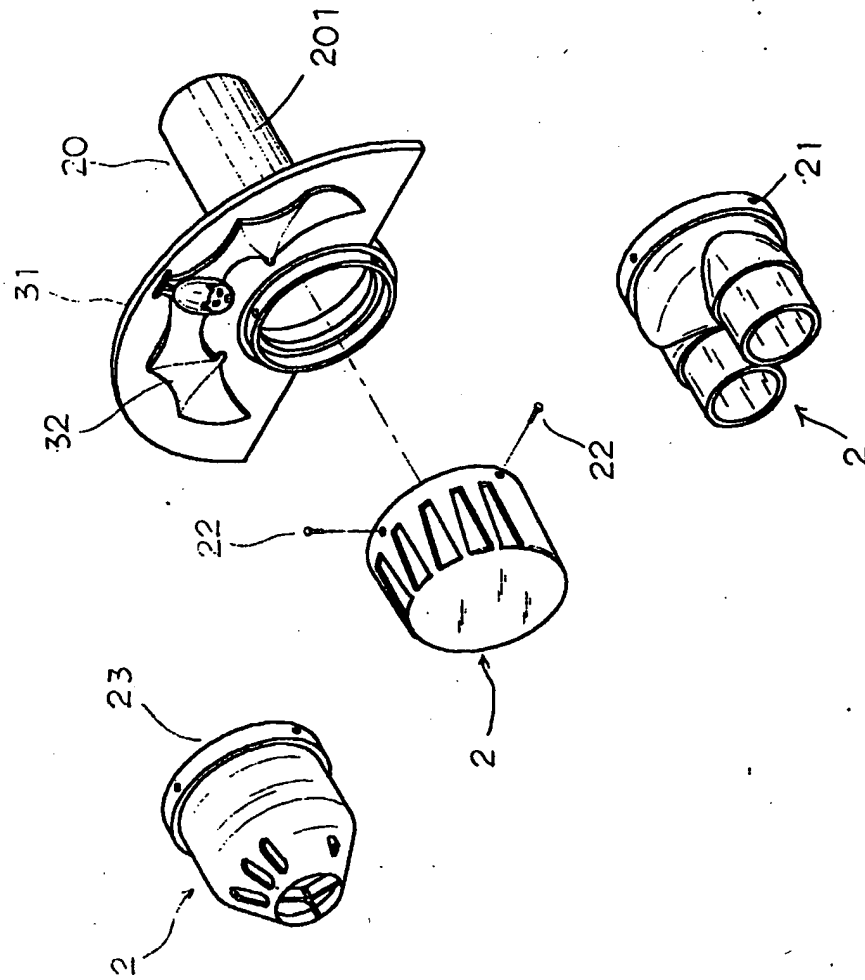


Fig. 2

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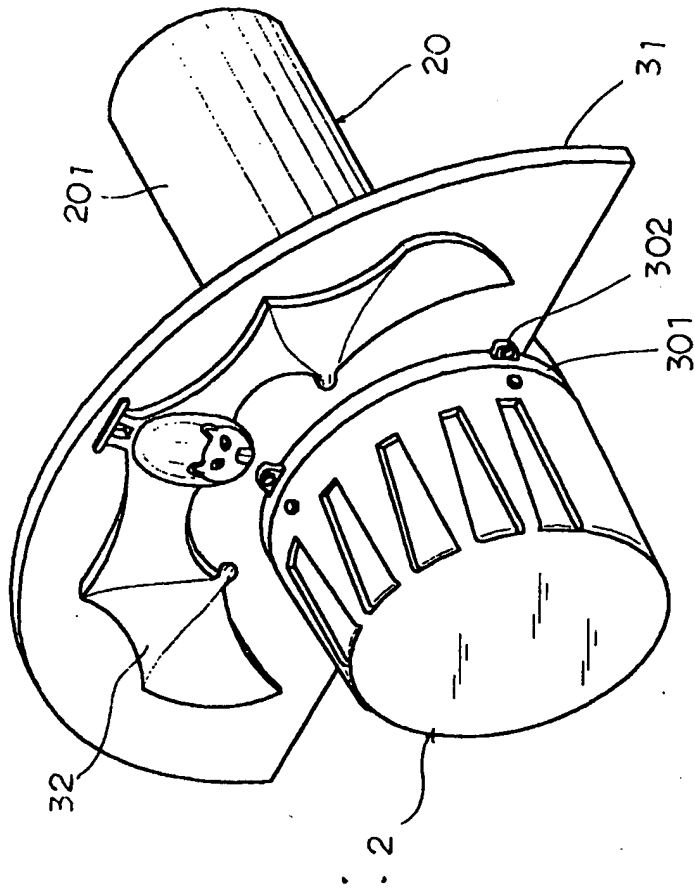


Fig. 2A

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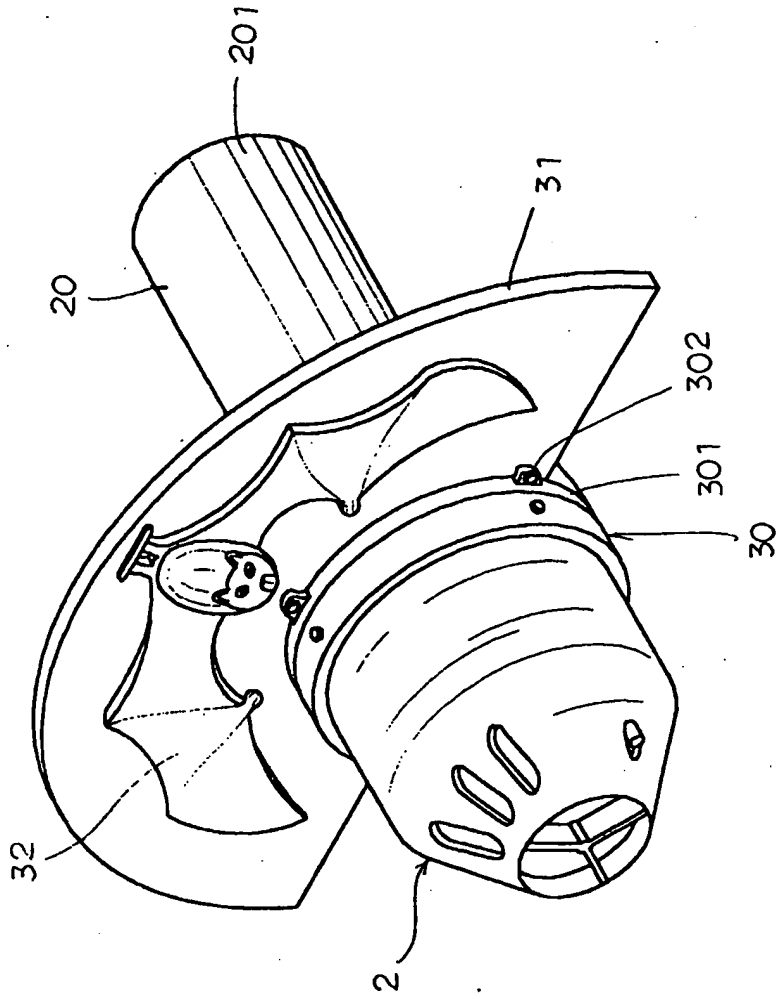


Fig 2B

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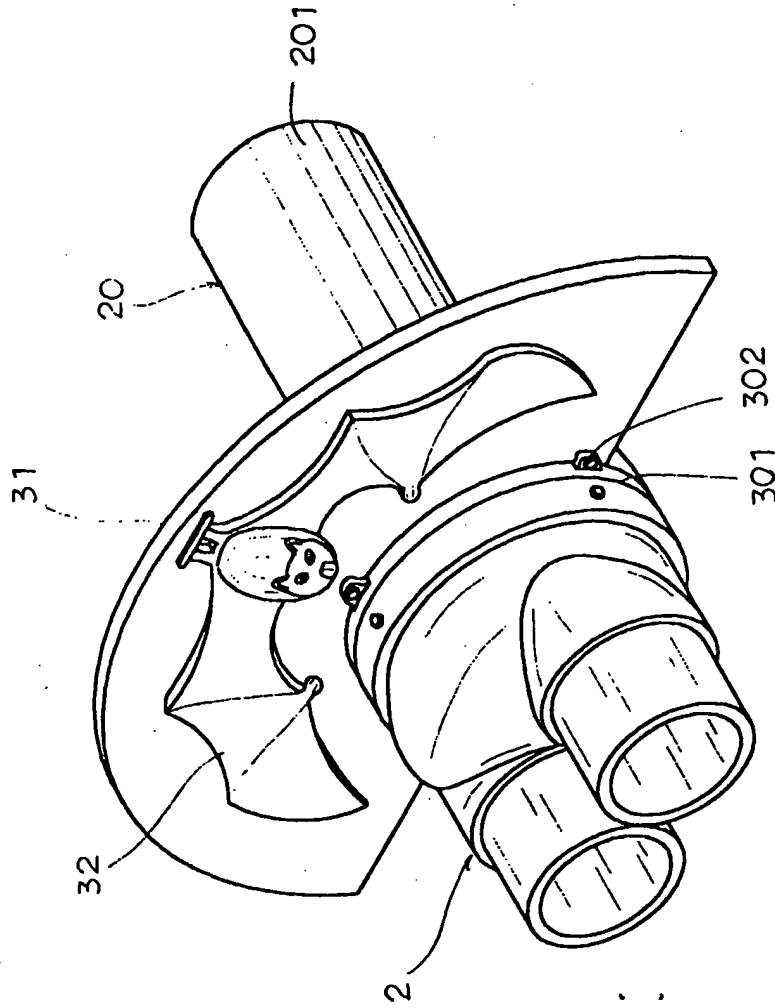


Fig 2C

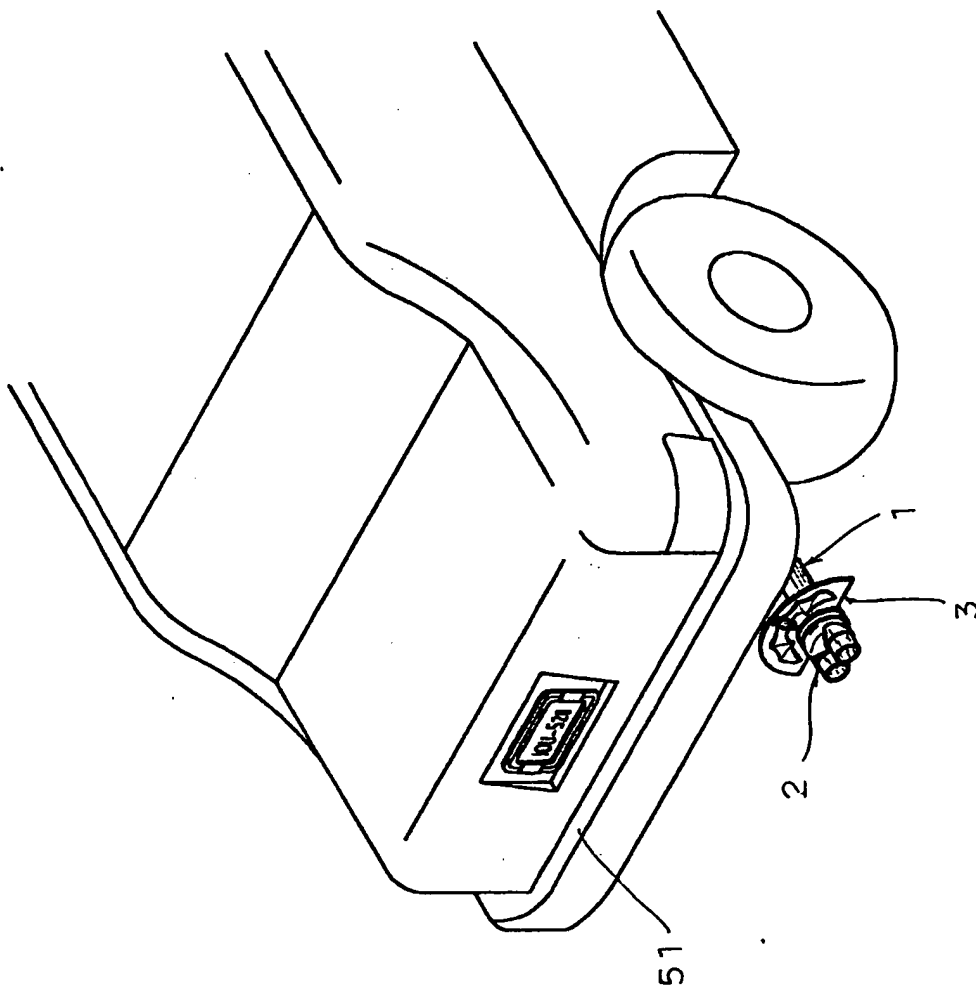


Fig 3

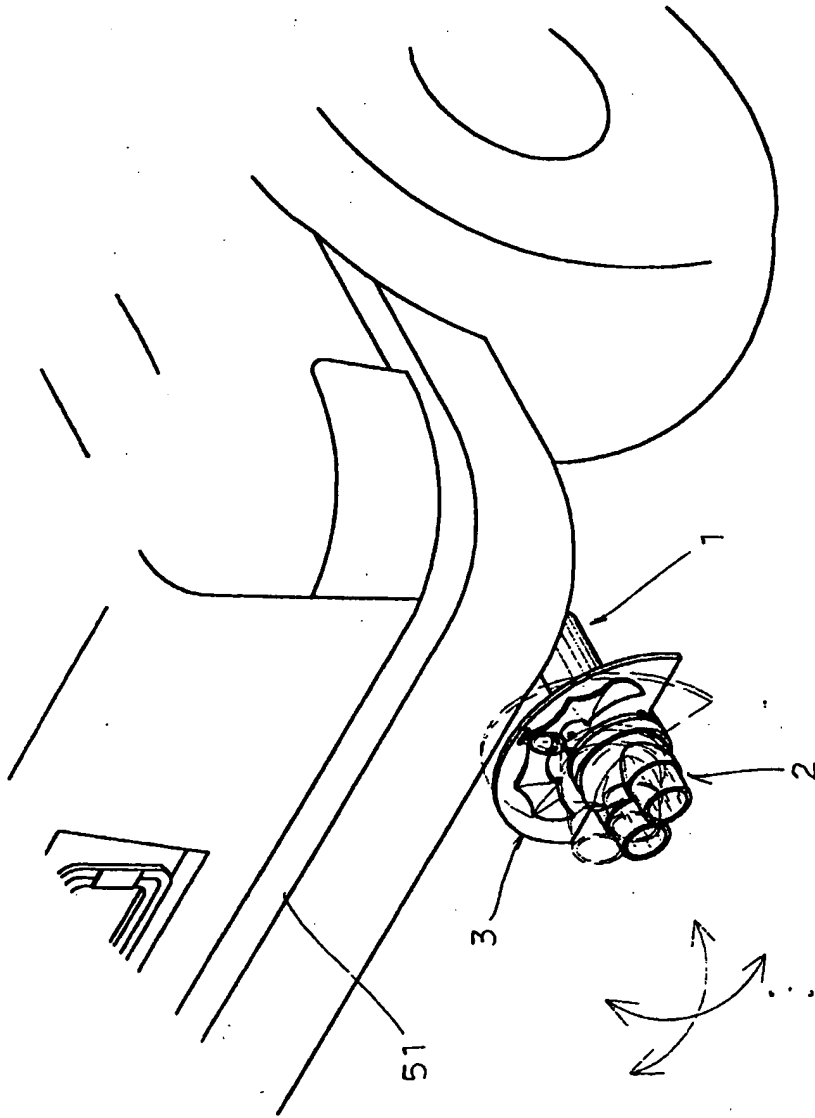
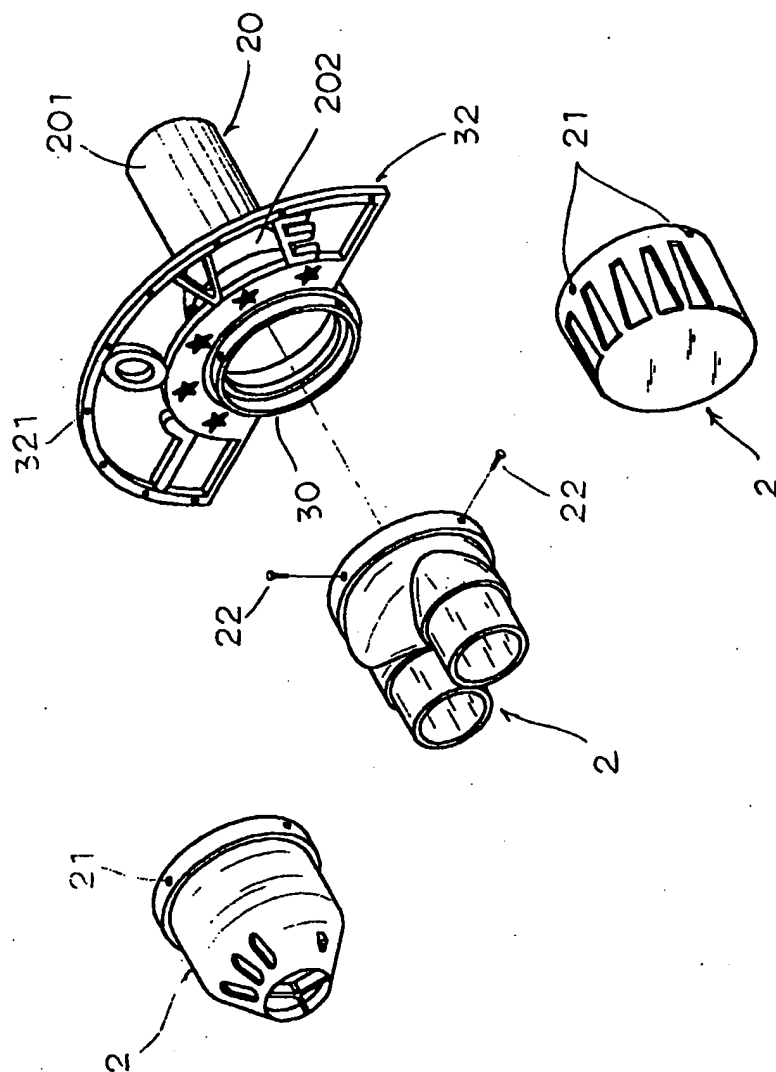


Fig. 4





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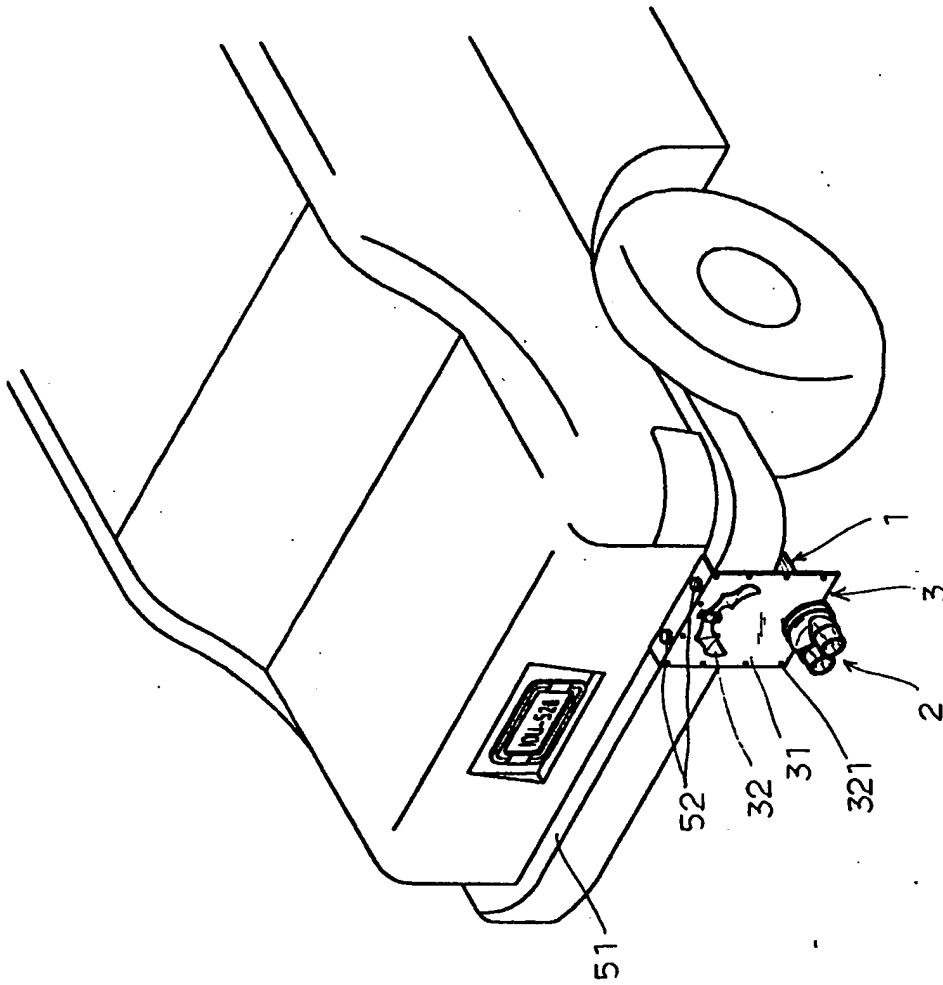


Fig. 6

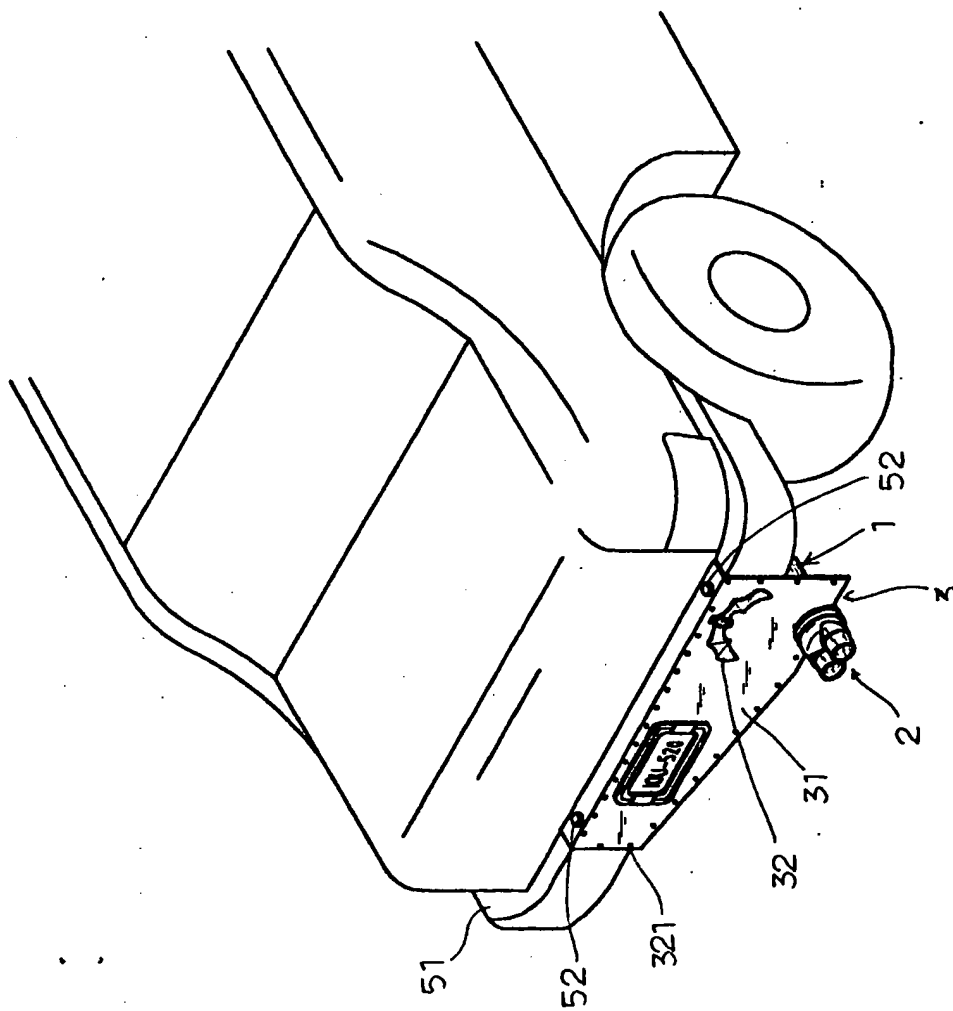


Fig. 7

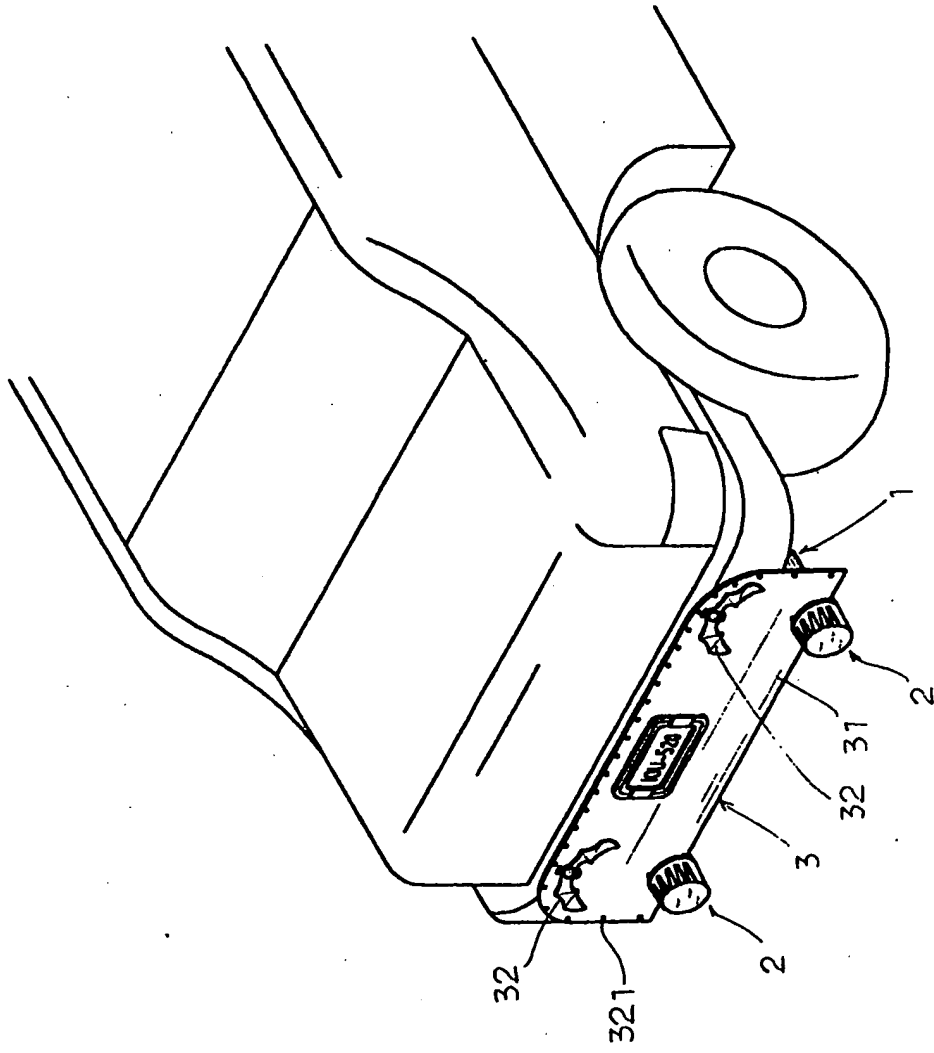


Fig 8

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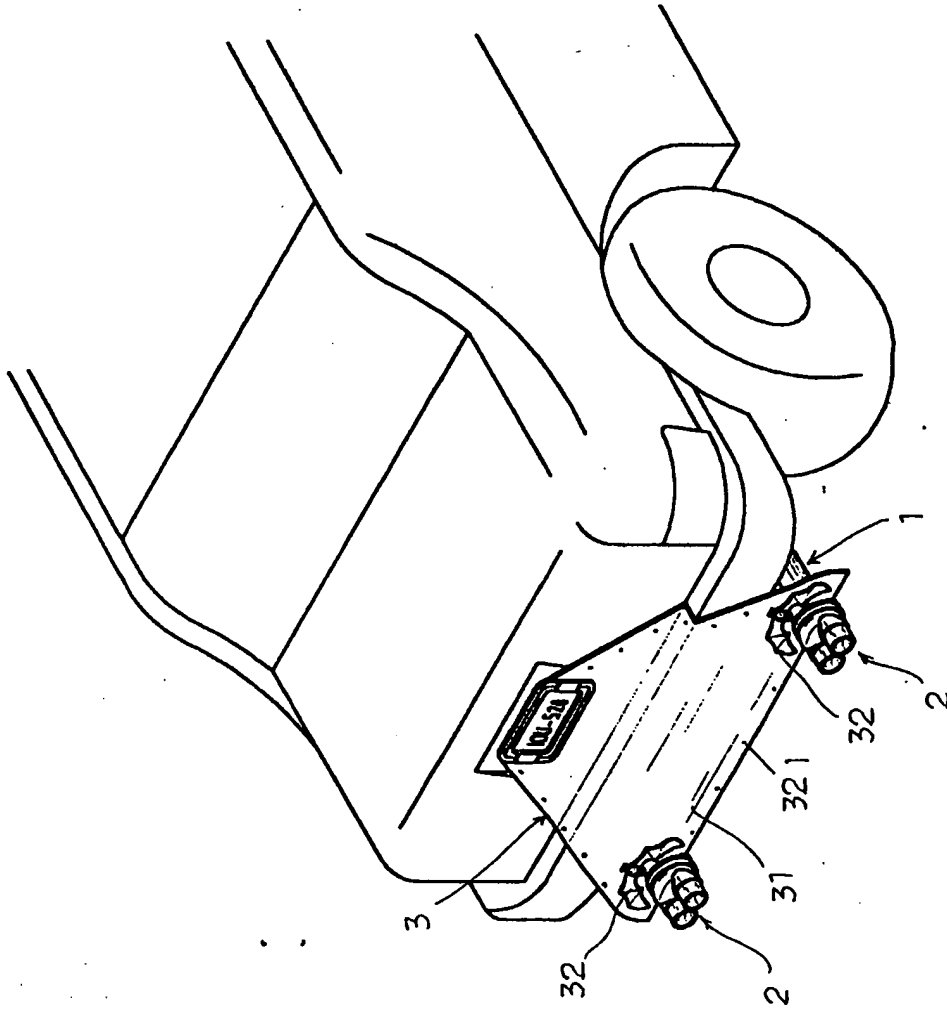


Fig 9

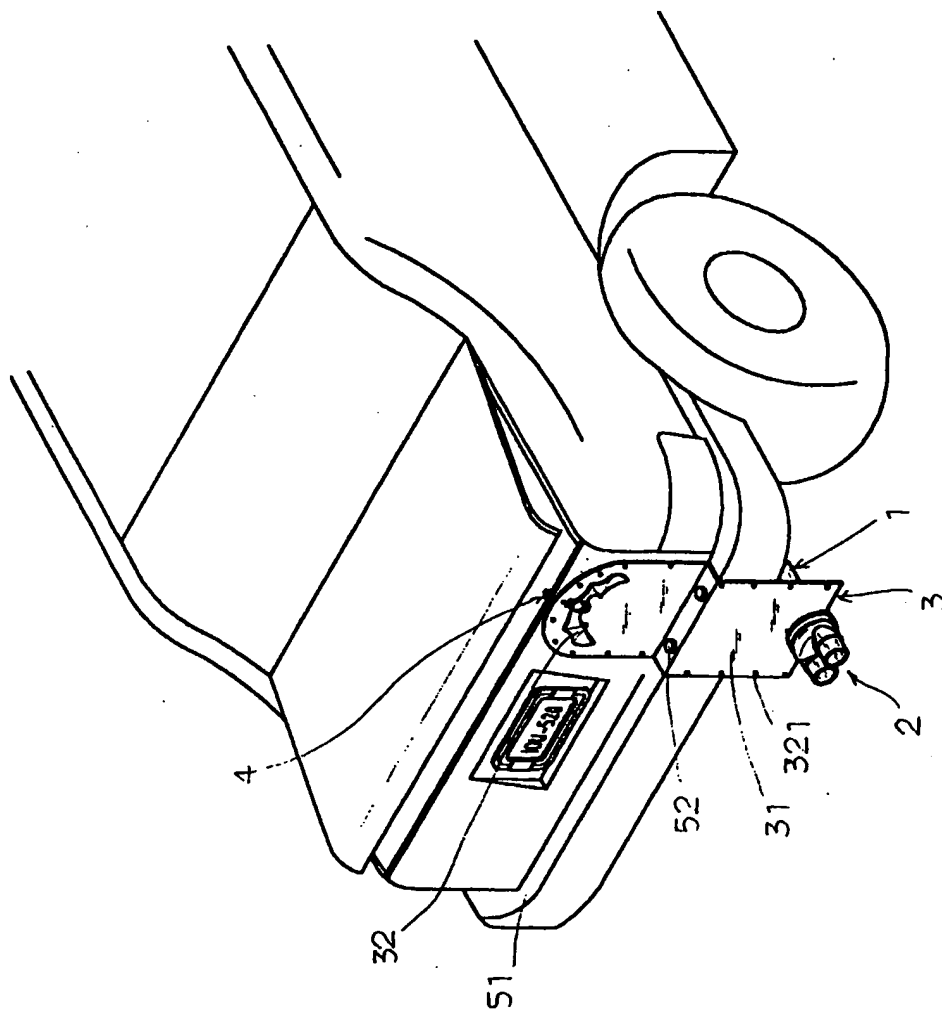


Fig 10

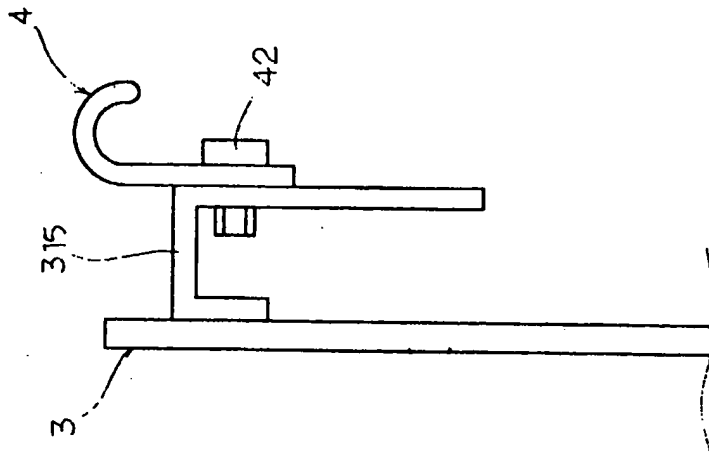
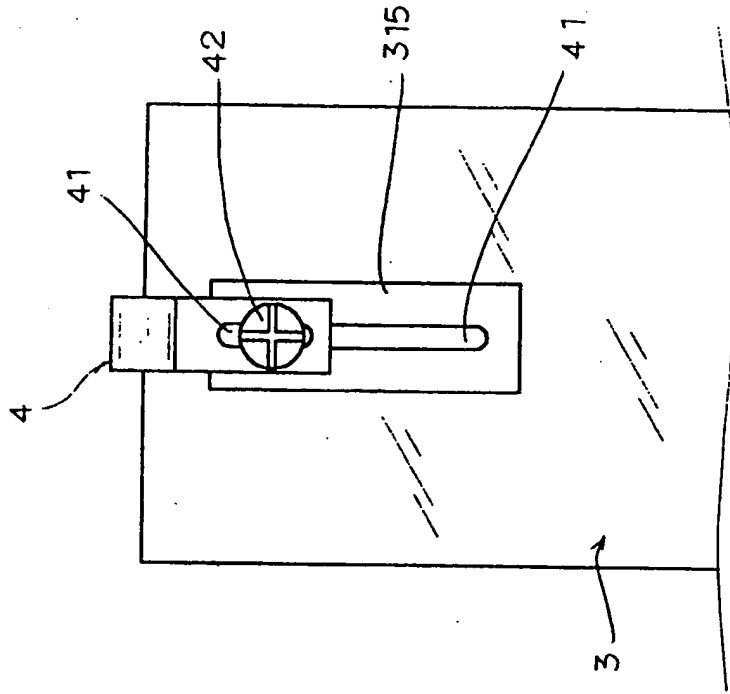


Fig 11

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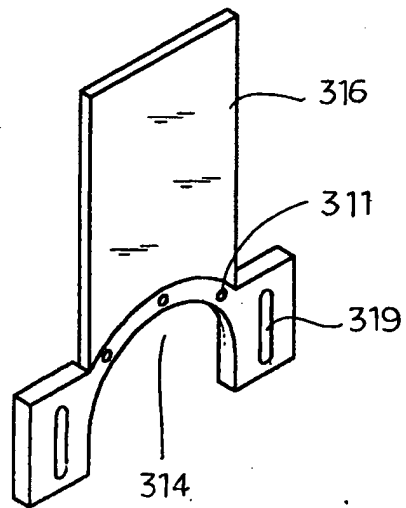
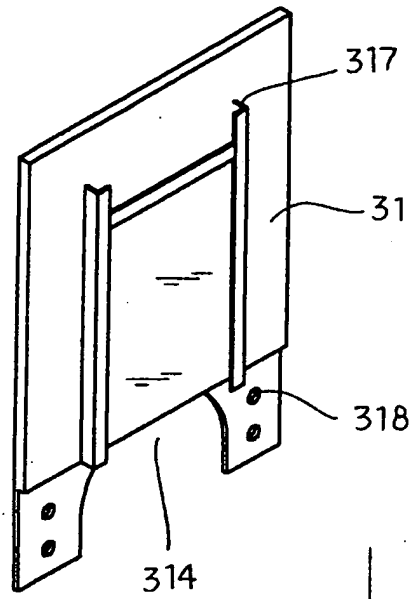


Fig. 12



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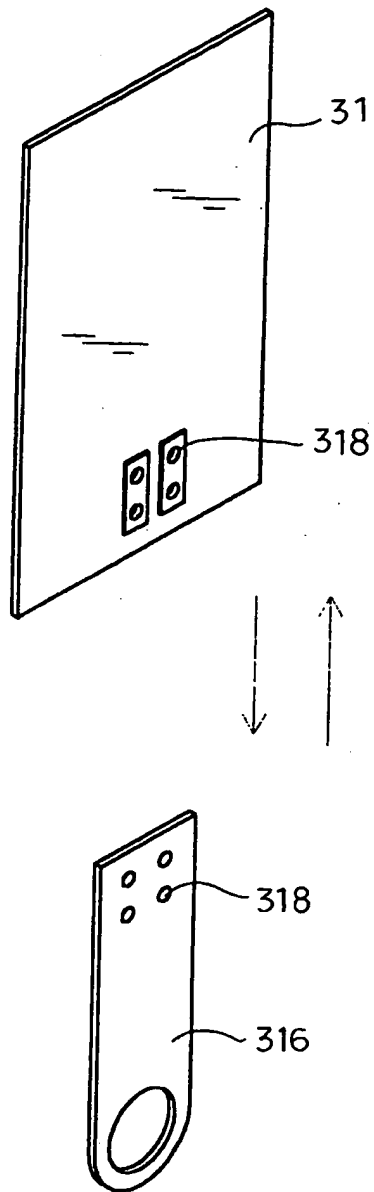


Fig 13

**Exhaust Mechanism**

5 The present invention refers to an exhaust mechanism with adjustable angles. More elaborately, it is an exhaust mechanism with rotary angles easy to assemble and widely applied to all kinds of automobile exhausts.

10 Traditional automobile exhausts are single pipes. Users who want to promote the horsepower of the automobile usually replace the single pipe with duplex or more exhausts. This might fulfill their demanding performance yet lack of decoration and attraction.

15 Though the structure and application of such automobile exhausts seem to work just fine, the inventor of the present invention who has used and observed the structure of traditional exhausts found such exhausts only provided one function which was  
20 monotonous and lagging behind modern requirements for novelty and variety. Therefore, there is much for improvement in traditional exhausts.

25 In light of the demands in the market and the problems for traditional exhausts, the inventor of the present invention put years of experience in the research and the development of the exhaust mechanism with adjustable angles.

30 The objective of the present invention is to provide an exhaust mechanism with adjustable angles applicatory to exhausts in different specifications, diameters and numbers. Through the fixing plate installed in accordance with the user's preference and  
35 requirement and the formative decorative plate, a rotary multi-direction slip-on assembly that extends

along with the size of the exhaust and one formative  
exhaust cover installed on one end of the multi-  
direction slip-on assembly, the exhaust is given a  
great variety in application, decoration and  
5 attraction.

Therefore, according to the present invention, there  
is provided an exhaust mechanism with adjustable  
angles consisting of a multi-direction slip-on  
10 assembly, a formative exhaust cover and a  
decorative plate characterized in that said multi-  
direction slip-on assembly is a rotary multi-direction  
shaft consisting of a positioning inlay, a multi-  
direction connector and a linking ring, said formative  
15 exhaust cover is a replaceable cover with one opening  
inlaid interface and several screw holes at adequate  
distances along the exterior edge to bolt to said  
linking ring, a formative mold is set on the other end  
with several holes for ventilation, said decorative  
20 plate is composed of a fixing plate and a decorative  
plate, size of said decorative plate could be adjusted  
in accordance with user's preference and requirements,  
said fixing plate could be made of any material (such  
as metal, wood) into any shape of depth, such as  
25 semicircle, rectangle or any shape, beneath said  
fixing plate, there is a curved breach at an adequate  
distance with several screw holes lying along said  
breach.

30 In the following, the embodiment illustrated is used  
to describe the detailed structural characteristics  
and operation action for the present invention. The  
figures are not intended to impose any restriction on  
the form of the present invention. Any modification  
35 or changes to the present invention with the same  
inventive sprits are protected in the present  
invention.

Specific embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:-

5

Fig. 1 is a diagram about the detailed decomposition of the structure for the present invention;

10

Fig. 2 is a diagram about the first applied appearance for the present invention;

Fig. 2A is a diagram about the first applied combination for the present invention;

15

Fig. 2B is a diagram about the first applied combination for the present invention;

Fig. 2C is a diagram about the first applied combination for the present invention;

20

Fig. 3 is a diagram about the applied installation for the present invention;

25

Fig. 4 is a diagram about the applied operation for the present invention;

Fig. 5 is a diagram about second applied appearance decomposition for the present invention;

30

Fig. 6 is a diagram about third applied installation for the present invention;

Fig. 7 is a diagram about fourth applied appearance decomposition for the present invention;

35

Fig. 8 is a diagram about fifth applied appearance

decomposition for the present invention;

Fig. 9 is a diagram about sixth applied appearance decomposition for the present invention;

5

Fig. 10 is a diagram about seventh applied appearance decomposition for the present invention;

10

Fig. 11 is a diagram about the structure of the hook and the spacer for the present invention;

Fig. 12 is a diagram about another application of the fixing plate for the present invention; and

15

Fig. 13 is a diagram about still another application of the fixing plate for the present invention.

20

The present invention is a decorative and attractive exhaust mechanism with adjustable angles. It consists of one multi-direction slip-on assembly 1, one formative cover 2 and one decorative plate 3.

25

Referring to Fig. 1 in which multi-direction slip-on assembly 1 is a rotary multi-direction shift composed of one positioning inlay 10, one multi-direction connector 20 and one linking ring 30. The positioning inlay 10 is a curved assembly that could be slipped on the curved connecting interface 202 of the multi-direction connector 20. On the outside of its ring body is set with several adjustable positioning holes 101 for the positioning inlay 10 adjusted as needed to be fixed on the connecting interface 202 with screws 103. The bolt lock hole 102 could be locked to the bolt lock body 302 of the linking ring 30 with bolts 303.

35

The multi-direction connector 20 consists of the slip-

on shaft 201 and the curved connecting interface 202 wherein the slip-on shaft 201 is a hollow shaft with one end connected to the automobile exhaust and the replacing interface 202 is slipped through the positioning inlay 10 with one end connecting to the linking ring 30.

The linking ring 30 is a slip-on ring with an opening on either end. A blocker 301 is set on the exterior of the ring at adequate distance with several bolt locks 302 at equal distances on the top so as to fix to the bolt lock hole 102 of the positioning inlay 10 by passing the bolt 303 through the screw hole of the fixing plate 31.

When installing the multi-direction slip-on assembly 1, the above adjusted positioning inlay 10 is passed through the positioning hole 101 to the connecting interface 202 of the multi-direction connector 20 and fixed on the multi-direction connector 20 with the bolt 103. The bolt lock 302 of the linking ring 30 and the screw hole 311 of the positioning plate 31 are connected to the bolt lock hole 102 of the positioning inlay 10 by means of the bolt 303. This allows the installation and the rotation of the formative exhaust cover 2 and the decorative plate 3 for the application to exhausts in all kinds, specifications and sizes.

The formative exhaust cover 2 is a replaceable cover with one end as the opening inlay interface 23 whose exterior is installed with several screw holes 21 so as to connect to the linking ring 30 with the bolt 22. The other end of the cover 2 is a changeable molding with several openings or holes for the purpose of ventilation.

The decorative plate 3 is composed of the fixing plate

31 and the decorative plate 32 whose size and shape could be adjusted in accordance with the user's preference and requirements.

5 The fixing plate 31 could be made of any material (such as metal, wood) into any shape with depth, such as semicircle, rectangle or any shape (as shown in Fig. 3, Fig. 6 to Fig. 10). The surface is fixed by passing the bolt 313 through the lock hole 312 or  
10 through adhesion (such as twin adhesive) so as to connect the decorative plate 32, thus provides decoration and attraction (shown in Fig. 1). On the back of the decorative plate 32 there is a pair of screw holes corresponding to the lock hole 312 for the  
15 insertion and fixing of the screw 313.

Beneath the fixing plate 31 there is a curved breach 313 at an adequate distance that go with the linking ring 30. Along the curved breach 314 of the fixing  
20 plate 31 there are several screw holes 311 for the fixing plate 31 to fix on the linking ring 30 of the multi-direction slip-on assembly by inserting the bolt 313 to the lock body 302 of the linking ring 30 (as shown in Fig. 2A, B and C) or to fix to the multi-  
25 direction slip-on assembly 1 by welding with the linking ring 30 (as shown in Fig. 2). Besides, in order to meet the requirement of molding, several LEDs 321 could be set at equal distances on the edge of the fixing plate 31 of the decorative plate 3 (as shown in  
30 Fig. 5-10).

Furthermore, on the back of the fixing plate 31 of the decorative plate 3 there is a  $\pi$ -shaped spacer 315 at an adequate distance with an adjustable trough 41. On  
35 one side of the spacer 315 there is a hook 4 for the adjustable trough 41 (as shown in Fig. 11) to hook onto the trunk of the automobile (as shown in Fig.

10). The hook 4 and the spacer could be passed through the adjustable trough 41 with the bolt 42 so that the hook is able to move up and down to adjust the height.

5

The above components form a complete decorative and attractive exhaust mechanism with adjustable angles. Please refer to Fig.2 to Fig. 10. During the installation (please refer to Fig.1, Fig. 3 and Fig. 4), the decorative and attractive exhaust mechanism with adjustable angles for the present invention is installed at the opening of the automobile exhaust which passes through the slip-on shaft 201 of the multi-direction slip-on connector 20. After adjusting the positioning inlay 10 to an adequate angle, lock it to the slip-on shaft 201 of the multi-direction connector 20 by passing the bolt 103 through the lock hole 102, which is easy and fast. Moreover, the decorative plate 3 could be connected to the multi-direction slip-on assembly 1 by welding (as shown in Fig. 2) or bolting (as shown in Fig. 2A, B and C). In this way, the decorative plate 32 (bolted or adhered) and the fixing plate 31 could be replaced by the user's favourite, thus highlights the user's personal style, characteristics and variety.

Please refer to Fig. 6 to Fig. 10. From Fig. 6 and Fig. 7, you see a larger size of the present invention with a fixing plate 31 equipped with the decorative plate 32 and the bulb 321. One end of the fixing plate 31 is bended vertically to fix to the bumper 51 of the automobile with the curved breach 314 on the other end embedded onto the multi-direction slip-on assembly 1 to form another application mode wherein there are several rows of adjustable lock holes 318 either beneath the fixing plate 31 or above the combing plate 316 locked by bolts. Then slip the



circular holes beneath the combining plate 316 to the multi-direction slip-on assembly 1.

- 5 In summary, the exhaust mechanism with adjustable angles and decoration functions for the present invention provides more functions than traditional mechanism and has broke through traditional technology bottleneck, which practically meets the qualifications for invention based on new type and improvement.

### Claims

1. An exhaust mechanism with adjustable angles  
consisting of a multi-direction slip-on  
5 assembly, a formative exhaust cover and a  
decorative plate, characterized in that:  
  
said multi-direction slip-on assembly is a  
rotary multi-direction shaft consisting of a  
10 positioning inlay, a multi-direction connector  
and a linking ring;  
  
said formative exhaust cover is a replaceable  
cover with one opening inlaying interface and  
15 several screw holes at adequate distances along  
the exterior edge to bolt to said linking ring, a  
formative mold is set on the other end with  
several holes for ventilation;  
  
20 said decorative plate is composed of a fixing  
plate and a decorative plate, size of said  
decorative plate could be adjusted in accordance  
with user's preference and requirements, said  
fixing plate could be made of any material (such  
25 as metal, wood) into any shape of depth , such as  
semicircle, rectangle or any shape, beneath said  
fixing plate, there is a curved breach at an  
adequate distance with several screw holes lying  
along said breach.  
30  
2. The exhaust mechanism with adjustable angles of  
Claim 1, wherein said positioning inlay is a  
curved assembly connecting to said curved multi-  
direction connector, outside said positioning  
35 inlay there are several adjustable positioning  
holes for said adjusted positioning inlay to  
connect to a connecting interface by bolts

locking a bolt lock hole with a bolt lock of said linking ring;

5        said multi-direction connector is a shaft  
consisting of a slip-on shaft and a curved  
connecting interface, wherein said connecting  
interface is connected inside said positioning  
inlay in a way to rotate in multiple directions  
with one end of said slip-on shaft connecting to  
10       an automobile exhaust, said connecting interface  
could be combined within said positioning inlay  
on one end while the other end embedded to said  
linking ring; and

15       said linking ring is a ring with an opening on  
either end and a blocker outside said linking  
ring, there are several equal-distance bolt locks  
outside said linking ring so as to connect said  
fixing plate to said fixing plate by passing said  
20       bolts through said screw lock holes;

3.       The exhaust mechanism with adjustable angles of  
Claim 1, wherein said fixing plate's surface  
could be attached to a patterned decorative plate  
25       with screws or adhesion (such as twin adhesive)  
to provide a decorative and attractive exhaust  
mechanism with adjustable angles.

4.       The exhaust mechanism with adjustable angles of  
30       Claim 1, wherein said decorative plate could be  
connected with said multi-direction slip-on  
assembly by bolting or welding.

5.       The exhaust mechanism with adjustable angles of  
35       Claim 1, wherein said decorative plate could have  
several equal-distance LEDs sitting on the edge.

6. The exhaust mechanism with adjustable angles of Claim 1, wherein said fixing plate of said decorative plate could be performed into a N-shaped plate (as an end view) with a n-shaped spacer containing an adjustable trough on the back, said spacer has a hook with another adjustable trough on one side being able to be moved up and down if needed, thus be hooked on an automobile's trunk.
7. The exhaust mechanism with adjustable angles of Claim 1, wherein said fixing plate's back of said decorative plate could be set with a combining plate so as to embed to a sliding trough on said fixing plate, thus said fixing plate is able to move up and down by adjusting said trough or said lock holes before locking up with bolts.
8. The exhaust mechanism with adjustable angles of Claim 1, wherein said fixing plate and said decorative plate of said decorative plate are changeable by inserting said curved breach to said multi-direction slip-on assembly closely to form a one-piece assembly and placed on one or more exhausts.
9. An exhaust mechanism substantially as hereinbefore described with reference to or as shown in the accompanying figures.



INVESTOR IN PEOPLE

Application No: GB 0222325.3  
Claims searched: 1 to 9

12

Examiner: John Twin  
Date of search: 14 February 2003

## Patents Act 1977 : Search Report under Section 17

### Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance	
X	1 at least	EP 1264972 A	(Lee Mong-Yu)
X	1 at least	US 6340144 B	(Janchy Enterprises)

### Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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### Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>v</sup>:

F1B

Worldwide search of patent documents classified in the following areas of the IPC<sup>7</sup>:

F01N

The following online and other databases have been used in the preparation of this search report :

online: EPODOC, JAPIO, WPI, INTERNET